UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

November 26, 2002

MEMORANDUM

SUBJECT: Final Determination Analysis Document for EnCana's Application for a Revision to OCS Construction Permit No. OCS 2002-01 for the McCovey Prospect

FROM: Dan Meyer
Office of Air Quality (OAQ - 107)

TO: Files

SCOPE

This document presents EPA's final determination to approve EnCana Oil & Gas (USA) Inc. ("EnCana")'s proposal to revise OCS construction permit No. OCS 2002-01 issued May 29, 2002. The existing permit enables EnCana to conduct oil and gas exploration activities in the McCovey Unit ("McCovey"), Beaufort Sea under authority of Section 328 of the Clean Air Act ("Act"). 42. U.S.C. 7401, *et seq*. Note, EnCana Corporation was created on April 5, 2002, by the merger of Alberta Energy Corporation Ltd. (AEC) and PanCanadian Energy Corporation.

GENERAL INFORMATION

On May 29, 2002, EPA issued an OCS construction permit to EnCana to conduct exploratory oil and gas drilling at McCovey. The permit became effective July 4, 2002.

EnCana has now assembled its mobile offshore drilling unit at the exploration site in preparation for drilling this winter. The OCS permit allows for exploratory drilling either this winter or next.

On November 14, 2002, EPA received, via e-mail and facsimile, an application from EnCana for a revision to the permit (Attachment 1). EnCana is requesting permission to operate 22 new emission units in addition to the original 20 emission units already permitted. The emission units primarily consist of diesel-fired internal combustion engines. Based primarily upon EnCana's new projected hours of operation for all 42 emission units and its commitment to stay within the existing facility-wide diesel fuel usage limit, EnCana does not anticipate air emissions to increase. EnCana is also requesting an increase in the permitted hours of operation for the existing garbage incinerator, a reduction in the permitted hours of operation for the existing flares, and a permit condition limiting the hours of operation for two new garbage incinerators

EMISSIONS INVENTORY

The November 14, 2002, application provides a revised list of SDC emission units (absent the

two supply tugs) and projected annual emissions on a unit-by-unit basis. The SDC consists of 36 stationary combustion sources along with 4 mobile combustion sources.

EnCana has revised the SDC's projected potential emissions based upon the following information presented in the application for permit revision:

- projected annual hours of operation,
- annual limit on hours of operation for three incinerators and two flares, and
- annual diesel fuel usage cap.

The operating projections and requested operating restrictions for previously permitted SDC equipment (absent the two supply tugs) are presented in Table 1.

Table 1

EU ID	EU	Original Projected Annual Hours of Operation	Revised Projected Annual Hours of Operation	Operating Restriction in Revised Permit
1 - 7	Caterpillar D-399 Engines	17720	15500	Facility-wide Diesel Fuel Usage Cap
8 - 9	Flares P & S	504	96	Combined Hours of Operation
10	GM 12V71 Engine	240	1250	Facility-wide Diesel Fuel Usage Cap
11	GM 12V71 Engine	240	240	Facility-wide Diesel Fuel Usage Cap
12	GM 6V71 Engine	240	60	Facility-wide Diesel Fuel Usage Cap
13	Lister Boiler	2920	3500	Facility-wide Diesel Fuel Usage Cap
14	Lister Boiler w/Saacke Burner	2920	900	Facility-wide Diesel Fuel Usage Cap
15	Atlas MAX50S	240	500	Hours of Diesel Fuel Usage, Facility-wide Diesel Fuel Usage Cap
16	Cuttings Cleaning System	240	200	Facility-wide Diesel Fuel Usage Cap
-	MBLC- Mobile Source	240	400	-

EU ID	EU	Original Projected Annual Hours of Operation	Revised Projected Annual Hours of Operation	Operating Restriction in Revised Permit
-	FRKL - Mobile Source	240	900	-

The operating projections and requested operating restrictions for previously unpermitted SDC equipment are presented in Table 2.

Table 2

EU ID	EU	Projected Hours of Operation	Operating Restriction in Revised Permit
19	Lister Air Heater	1500	Facility-wide Diesel Fuel Usage Cap
20	MAC Chinook 800	1000	Facility-wide Diesel Fuel Usage Cap
21	Kubota D905	1000	Facility-wide Diesel Fuel Usage Cap
22	MAC Chinook 800	1000	Facility-wide Diesel Fuel Usage Cap
23	Kubota D905	1000	Facility-wide Diesel Fuel Usage Cap
24	Halliburton Line Heater	600	Facility-wide Diesel Fuel Usage Cap
25 - 27	Herman Nelson	100	Facility-wide Diesel Fuel Usage Cap
28 - 29	Smart Ash II	7200	Combined Hours of Operation, Facility-wide Diesel Fuel Usage Cap
30	Twin Detroit 8V71's	500	Facility-wide Diesel Fuel Usage Cap
31	Detroit 4-71	150	Facility-wide Diesel Fuel Usage Cap
32	Hatz A239	150	Facility-wide Diesel Fuel Usage Cap
33	Onan 12ODJC	150	Facility-wide Diesel Fuel Usage Cap
34 - 35	Lister ST3	100	Facility-wide Diesel Fuel Usage Cap
36	Onan 7.5DKDEJ	30	Facility-wide Diesel Fuel Usage Cap

EU ID	EU	Projected Hours of Operation	Operating Restriction in Revised Permit
37	Perkins 6.354	30	Facility-wide Diesel Fuel Usage Cap
38	Delmag D46-32	100	Facility-wide Diesel Fuel Usage Cap
-	DOZER- Mobile Source	100	-
-	BOB - Mobile Source	700	-

Given the operating projections and requested operating restrictions, EnCana indicates that SDC emissions will be less than originally anticipated as presented in Table 3. Note, unit-by-unit emissions are presented in the addendum to EnCana's November 14, 2002 application.

Table 3
SDC Operation Emissions (Tons/Yr)

	NO_x	CO	PM_{10}	SO_2	VOC
Original Projection	123.71	34.88	8.39	5.61	22.74
Revised Projection	123.36	16.55	8.25	4.93	22.74
Change	-0.35	-18.33	-0.14	-0.68	-10.06

DETERMINATION OF PSD APPLICABILITY

The applicable potential emissions threshold under Alaska's prevention of significant deterioration (PSD) program for a non-designated new facility is 250 tons per year of a regulated air pollutant pursuant to 18 AAC 50.300(c). As shown in Table 3 in the above section, the estimated potential emissions of each pollutant from SDC-related activity remains less than 250 tons per year. Therefore, the McCovey project is not subject to the requirements of the State of Alaska PSD program as approved in the Alaska Implementation Plan (40 CFR 52, Subpart C).

OCS CONSISTENCY WITH ADEC RULES

Pursuant to a final rulemaking published in the Federal Register on March 27, 2002 (67 FR 14646), the EPA's OCS regulations are consistent with ADEC's rules effective July 2, 2000.

A correction to the final rulemaking was required due to an error in the "effective date" language of the published final rule. On April 8, 2002, L. John Iani signed a final rulemaking to correct the error, and the final rulemaking correction was subsequently published in the federal register on April 26, 2002 (67 FR 20651). The effective date of the consistency update is April 26, 2002.

AMBIENT AIR QUALITY IMPACT ANALYSIS

No modeling beyond that conducted for the original permit was conducted to support EnCana's application for permit revision. As noted in EnCana's November 14, 2002, application,

> *The change in the mix of sources and operating conditions is not expected to increase the NO_x impacts (the only pollutant needing an impact evaluation for the current permit) to levels above the National Ambient Air Quality Standards, which for NO_x consists of an annual standard. The resultant impact will not approach the standard because there will be no increase in emissions and the impact estimate provided in January was only two-thirds of the NO_x standard. Furthermore, the January modeling effort used "screening dispersion meteorology" which tends to result in conservatively high impact assessments.*
>
> *Since NO_x is the only pollutant of significance, and NO_x is an issue only as an annual impact, there is no need to limit the hourly emission rates, only the annual rates, as is the case with the current permit.*

Alaska DGC Consistency Review

The State of Alaska Division of Governmental Coordination (DGC) has reviewed the revised emissions inventory, and the DGC has determined that an additional consistency review is not needed (Attachment 2).

FINDINGS

1. EnCana proposes to conduct exploratory oil and gas drilling in the OCS near-shore waters of the Beaufort Sea at the McCovey Prospect exploration site (the site hereafter referred to as "McCovey"), north-northeast of the Midway Islands, in the vicinity of Prudhoe Bay, Alaska. Exploratory drilling will be conducted from November 2002 through March 2003, and / or, from November 2003 through March 2004.
2. EnCana proposes to utilize the Steel Drilling Caisson/Mat drilling facility (the facility hereafter referred to as "SDC") to conduct the exploration activities at the McCovey site.
3. The SDC is classified as an ambient air quality facility under 18 AAC 50.300(b) because each of its two flares has a rated capacity of greater than 100 MMBtu per hour.
4. Due to the SDC's classification as a facility having the potential to violate one or more of the ambient air quality standards (AAQS), EnCana is required to obtain a construction permit pursuant to 18 AAC 50.300(b).
5. EnCana has requested operating restrictions for SDC so as to limit its potential to emit air pollution and thus avoid interfering with the attainment or maintenance of the AAQS in the area of impact. To accommodate EnCana's request, EPA is restricting the following operations of the SDC through this permitting action: (a) annual quantity of diesel fuel combusted by all emissions units, (b) sulfur content of the diesel fuel being combusted, (c) annual hours of operation for the test flares, two of the garbage incinerators, and tugs while physically attached to the SDC, and (d) annual hours of diesel fuel combustion for one of the garbage incinerators.
6. In order to further limit SDC's potential to emit air pollution and thus avoid interfering

with the attainment or maintenance of the AAQS in the area of impact, EPA is restricting the following operations of marine vessels physically attached to the SDC through this permitting action: (a) sulfur content of the diesel fuel being combusted and (b) annual hours of operation.

7. EnCana conducted an analysis to determine the SDC and its related activity's potential emissions utilizing fuel use limits and limits on hours of operation. EnCana assumed that all emissions units were operated at their respective maximum rated hourly capacities over a projected operating period specific to each unit. EnCana also assumed that all diesel fuel fired had a maximum allowable sulfur content. The projected maximum allowable emissions as calculated by EnCana are presented here: nitrogen oxides (NO_x) – 153.65 tons per year (TPY), carbon monoxide (CO) – 23.49 TPY, respirable particulate matter (PM_{10}) – 9.13 TPY, sulfur dioxide (SO_2) – 10.04 TPY, volatile organic compound (VOC) – 23.63 TPY, and lead (Pb) – 0.3 pounds per year (0.00015 TPY).
8. Projected allowable emissions of NO_x from the SDC and related activities exceed 40 TPY given the terms of the proposed construction approval. Pursuant to 18 AAC 50.310(n), EnCana is required to demonstrate that allowable NO_x emissions from the facility will not interfere with attainment or maintenance of the AAQS for NO_2.
9. Pursuant to 18 AAC 50.310(n), EnCana is not required to make such an air quality demonstration for PM_{10}, SO_2, and Pb as allowable emissions from the facility, including emissions from the SDC and its related activity, do not exceed, respectively 15 TPY, 40 TPY or 0.6 TPY. The above provision does not provide for any ambient air quality demonstration due to CO or VOC emissions.
10. EnCana conducted an ambient air impact analysis of the original emissions inventory included in the May 29, 2002, permit to demonstrate that allowable emissions from the facility will not interfere with attainment or maintenance of the AAQS for NO_2.
11. This revised permit will expire on July 4, 2004. Therefore, the SDC is a "temporary construction activity" as defined in 18 AAC 50.990(92) and exempt from the requirement to demonstrate that allowable emissions from the facility will not interfere with maximum allowable ambient concentrations.
12. EnCana did not conduct an ambient air impact analysis to demonstrate that allowable emissions from the facility will not interfere with maximum allowable ambient concentrations.
13. Air pollution emissions from EnCana are regulated by the state of Alaska requirements applicable to OCS sources, July 2, 2000, (40 CFR Part 55, Appendix A) and the Alaska Implementation Plan (40 CFR Part 52, Subpart C). Conditions within this permit are consistent with the above regulations.
14. No proposed emissions unit at the SDC is subject to either the New Source Performance Standards (40 CFR Part 60) or the National Emissions Standards for Hazardous Air Pollutants (40 CFR Part 61 and 63).
15. EPA is permitting SDC to operate with maximum projected allowable emissions of: NO_x – 123.36 TPY, CO – 16.55 TPY, PM_{10} – 8.25 TPY, SO_2 – 4.93 TPY, VOC – 22.74 TPY, and Pb – 0.3 pounds per year (0.00015 TPY).
16. On August 7, 2002, EnCana notified EPA of commencement of construction and startup of the facility as required under Condition 5 of the original permit.

Accordingly, it is hereby determined that, subject to the conditions set forth below, EnCana is permitted to conduct exploratory oil and gas drilling using the SDC/Mat drilling facility at the McCovey Prospect exploratory site, as described in the permit applications submitted on January 30, 2002, February 21, 2002, March 8, 2002, and November 14, 2002.

APPROVAL CONDITIONS

EPA is revising the emissions unit table in Approval Condition 1 as follows:

EU ID	EU	EU Description	Fuel Type	Annual Operating Limit	Emission Limitations
1	Caterpillar D-399 Engine	Drilling Main Engine #1	Diesel	-	•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]
2	Caterpillar D-399 Engine	Drilling Main Engine #2	Diesel	-	•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]
3	Caterpillar D-399 Engine	Drilling Main Engine #3	Diesel	-	•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]
4	Caterpillar D-399 Engine	Drilling Main Engine #4	Diesel	-	•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]
5	Caterpillar D-399 Engine	Drilling Main Engine #5	Diesel	-	•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]
6	Caterpillar D-399 Engine	Drilling Main Engine #6	Diesel	-	•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]
7	Caterpillar D-399 Engine	Drilling Main Engine #7	Diesel	-	•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]
8	Flare - P	Flare on the Port Side	Well gas	**See limit at end of table**	•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]

EU ID	EU	EU Description	Fuel Type	Annual Operating Limit	Emission Limitations
9	Flare - S	Flare on the Starboard Side	Well gas	**See limit at end of table**	•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]
10	GM 12V71 Engine	Port Crane Engine	Diesel	-	•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]
11	GM 12V71 Engine	Starboard Crane Engine	Diesel	-	•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]
12	GM 6V71 Engine	Aft Crane Engine	Diesel	-	•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]
13	Lister Boiler	Hot water boiler	Diesel	-	•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]
14	Lister Boiler w/Saacke Burner	Hot water boiler	Used oils from SDC equipment and diesel	-	•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]
15	Atlas MAX50S	Garbage incinerator	Trash, domestic waste, and diesel	~~500~~ **240** hours combusting diesel fuel[1]	•20% Opacity[3,4]
16	Cuttings Cleaning System	Volcano burner fitted to a rotary dryer	Diesel	-	•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]
17	DST	Drilling supply tug physically attached to SDC	Diesel	264 hours[1]	•20% Opacity[7] •Diesel Fuel Sulfur Content $\leq$ 0.5 % by weight[2]
18	FST	Fuel supply tug physically attached to SDC	Diesel	100 hours[1]	•20% Opacity[7] •Diesel Fuel Sulfur Content $\leq$ 0.5 % by weight[2]
19	**Lister Air Heater**	**Indirect fired hot-air heater**	**Diesel**	**-**	**•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]**

EU ID	EU	EU Description	Fuel Type	Annual Operating Limit	Emission Limitations
20	**MAC Chinook 800**	**Indirect fired hot-air heater**	**Diesel**	**-**	**•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]**
21	**Kubota D905**	**Diesel engine to power MAC Chinook 800**	**Diesel**	**-**	**•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]**
22	**MAC Chinook 800**	**Indirect fired hot-air heater**	**Diesel**	**-**	**•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]**
23	**Kubota D905**	**Diesel engine to power MAC Chinook 800**	**Diesel**	**-**	**•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]**
24	**Halliburton Line Heater**	**Heats the piping during well testing**	**Diesel**	**-**	**•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]**
25	**Herman Nelson**	**Hot-air heater**	**Diesel**	**-**	**•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]**
26	**Herman Nelson**	**Hot-air heater**	**Diesel**	**-**	**•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]**
27	**Herman Nelson**	**Hot-air heater**	**Diesel**	**-**	**•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]**
28	**Smart Ash II**	**Garbage incinerator**	**Trash, domestic waste, and diesel**	**See limit at end of table**	**•20% Opacity[3,4]**

EU ID	EU	EU Description	Fuel Type	Annual Operating Limit	Emission Limitations
29	**Smart Ash II**	**Garbage incinerator**	**Trash, domestic waste, and diesel**	**See limit at end of table**	**•20% Opacity[3,4]**
30	**Twin Detroit 8V71's**	**Halliburton cement pump**	**Diesel**	**-**	**•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]**
31	**Detroit 4-71**	**Schlumberger logging unit**	**Diesel**	**-**	**•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]**
32	**Hatz A239**	**Schlumberger GPS unit**	**Diesel**	**-**	**•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]**
33	**Onan 12ODJC**	**Schlumberger logging unit**	**Diesel**	**-**	**•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]**
34	**Lister ST3**	**Schlumberger vertical seismic profiler**	**Diesel**	**-**	**•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]**
35	**Lister ST3**	**Schlumberger vertical seismic profiler**	**Diesel**	**-**	**•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]**
36	**Onan 7.5DKDE J**	**Halliburton Slickline generator**	**Diesel**	**-**	**•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]**
37	**Perkins 6.354**	**Halliburton Slickline hydraulic power**	**Diesel**	**-**	**•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]**

EU ID	EU	EU Description	Fuel Type	Annual Operating Limit	Emission Limitations
38	**Delmag D46-32**	**Drive hammer**	**Diesel**	**-**	**•20% Opacity[3,4] •0.05 grains PM/SCF[5] •500 ppm SO_2[6]**
1-7, 10-16 and 19-38	SDC	All diesel fueled emissions units	Diesel	1,263,909 total gallons of diesel fuel combusted[1]	•Diesel Fuel Sulfur Content ≤ 0.05% by weight[2]
8 and 9	Flare – P and Flare – S	Both flares	Well gas	~~504~~ **96** total combined hours of operation[1]	-
28 and 29	**Smart Ash II units**	**Garbage incinerators**	**Trash, domestic waste, and diesel**	**7200 hours combined hours of operation[1]**	**-**

Note of explanation regarding operating limits and emission limits.
1. The restriction on annual hours of operation and annual fuel use is an owner-requested limit. Compliance is determined on a 12-month rolling average basis.
2. The diesel fuel sulfur content limit is an owner-requested limit.
3. Visibility through the exhaust effluent of the incinerator may not be reduced by visible emissions, excluding water vapor, by more than 20 percent (20% opacity) for a total of more than three minutes in any one hour per 18 AAC 50.050(a)(2).
4. Visible emissions, excluding condensed water vapor, from each stationary IC engine, each flare, each boiler, and the cuttings cleaning system may not reduce visibility through the exhaust effluent by greater than 20 percent (20% opacity) for a total of more than three minutes in any one hour, per 18 AAC 50.055(a)(1).
5. The particulate matter (PM) limit of 0.05 grains per standard cubic foot (SCF) is located at 18 AAC 50.055(b)(1).
6. The sulfur-compound limit (expressed as SO_2) of 500 ppm averaged over a period of three-hours is located at 18 AAC 50.055(c).
7. Visible emissions, excluding condensed water vapor, from each marine vessel fixed to the SDC may not reduce visibility through the marine vessel's exhaust effluent by greater than 20 percent (20% opacity), per 18 AAC 50.070. See 18 AAC 50.070 as many exceptions may apply.

List of Attachments

1. EnCana November 14, 2002, application for a permit revision
2. November 22, 2002, e-mail from Glenn Gray of the Alaska DGC

ATTACHMENT 2